C2 Sub D2

4. (Twice Amended) An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:

an image sensor for generating the image signal from an array of photosites; and

an optical section having a birefringent uniaxial crystal [optical] spatial filter interposed in a path of the incident light which removes a portion of said high spatial frequencies in said incident light to produce a blurred image on said photosites, said birefringent uniaxial crystal optical filter being Lithium Tantalate.

5. (Twice Amended) An imaging apparatus as in Claim 1 wherein an angle between an optical axis of said [optical] spatial filter and a line normal to a filter facet is 37.85°.

C3

7. (Twice Amended) An imaging apparatus as in Claim 1 wherein said [optical] spatial filter is comprised of a first plate and a second plate of lithium niobate.

C4

10. An imaging apparatus as in Claim 1 wherein said blurred image is comprised of at least four spots.

11. (Amended) An imaging apparatus as claimed in Claim 1 wherein said optical section includes a lens, and said [optical] spatial filter is positioned between said lens and said photosites for blurring the image on said photosites.

12. (Amended) An imaging apparatus for generating an image signal from incident light with higher spatial frequencies of said incident light limited to reduce undersampling artifacts, said apparatus comprising:

an image sensor for generating the image signal from an array of photosites; and

an optical section having [an optical] a spatial filter made of a highly birefringent uniaxial crystal selected from a group comprised of lithium niobate[, Lithium

Tantalate, and calcite] and lithium tantalate interposed in the path of the incident image light so as to produce at least four spots at a detector plane.

cont. C4 W7

13. (Amended) An imaging apparatus as set forth in Claim 12 wherein said birefringent uniaxial crystal optical filter is comprised of two double refractors, and said four spots form a rhomboidal pattern wherein a sharp angle of the rhomboid is 45° and wherein the [optical] spatial filter is rotated about an optical axis of the imaging apparatus such that a base of the rhomboidal pattern forms an angle with one of two major coordinates of the imaging apparatus of between 20° to 40°.

C5 Sub B3

15. An imaging apparatus as in claim 7, wherein said second plate comprises a plane which is tilted at a 45° angle to a plane of said first plate.

REMARKS

Claims 2, 6, 8, 9, 14 and 16, having been cancelled, the claims remaining in the application are 1, 4, 5, 7, 10-13 and 15.

Rejection Under 35 U.S.C. § 103

The Examiner has rejected claims 1, 2, 7, 9, 10, 11, and 15 under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima (U.S. 5,579,420). This rejection is respectfully traversed.

The prior art cited by the Examiner differs from the present invention in both structure, function and result. The Fukushima filter removes all wavelengths except for a narrow band. This type of filter is known as a spectral filter, and is a type typically found in a multiplexing apparatus such as disclosed by Fukushima. In an apparatus of this type, shown in Exhibit A, attached, portions of the beam, which are an undesirable wavelength are removed (shown schematically as beam 6 and beam 8.) i.e. the total light power is reduced by the spectral filter.

In the present invention, the birefringent uniaxial crystal spatial filter does not remove wavelengths, rather it blurs certain high frequencies of the image projected on the filter. (See Exhibit B) In a complex photographic image certain features, for example, a picket fence, may produce high frequencies in a